

NOTES ON THE FLORA OF THE MOGOLLON MOUNTAINS, NEW MEXICO

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This brief paper begins another "series" of comments on the flora in the southwest, particularly in New Mexico. Voucher specimens have been or will be distributed to various herbaria in the United States. The following comments are about five species of plants in southwestern New Mexico that I have collected and observed during different seasons since 1966.

In the Mogollon Mountains of New Mexico at an elevation of 2760-2470 meters, Indian Creek drains from west to east and flows into Gilita Creek. Only 0.5 km south, Willow Creek converges with Gilita Creek to form the Middle Fork of the Gila River, a major wilderness river of the southwest. The south facing slope of the canyon is forested by *Pinus ponderosa* while on the north facing slope is a mixed coniferous woodland with *Pinus flexilis*, *Picea pungens*, *P. engelmannii*, *Pseudotsuga menziesii*, and *Abies concolor* its major constituents. Quaking aspen (*Populus tremuloides*) and *Quercus gambelii* become conspicuous angiospermous components of the mixed coniferous woodland.

Numerous small side canyons empty into the main canyon adding to the diversity of habitats that are common in the mountains of the southwest. The canyon bottom (100 meters or more broad in some places) is primarily grassland interspersed with scattered stands of *Pinus ponderosa* and occasional thickets of *Salix* sp. and *Sambucus neomexicana*. The following four species of plants that occur in this canyon are of interest.

ARCTOSTAPHYLOS UVA-URSI (L) Spreng. Up Indian Creek canyon 3 km, and 20 km east of Mogollon on State Highway 78, Catron Co., New Mexico. Hess 2143 (July 16, 1968). Locally common on either side of the canyon in dense shade under *Pinus ponderosa* or *Picea pungens*, *P. engelmannii*, and *Pseudotsuga menziesii*.

The collection of *Arctostaphylos uva-ursi* from this canyon extends the range by over 250 km from previous known regions in northern New Mexico. Most likely, other locations of this plant exist in the Mogollon Mountains. It has not been reported from the White Mountains of Arizona and one would expect to find it there. This distribution pattern illustrates two points of interest in southwestern phytogeography. The first would be the absence of data from field investigations on which widely distributed taxa are recorded for either the Mogollon Mountains or the White Mountains respectively, but not from both of the mountain ranges. This often is indicative of our poor knowledge concerning the flora of the region, but it may be these taxa simply

don't occur in both mountain ranges. The second is the southern extension of some northern Rocky Mountain plants as far south as the Mogollon Mountains and the northern extension of some northern Sierra Occidental plants from Mexico as far north as the Mogollon Range.

The only place in Arizona that *A. uva-ursi* is known to occur is in the Chuska Mountains (McDougal, 1973). These mountains occur in the northwestern and northeastern corners of New Mexico and Arizona, respectively. It has been known from these mountains in New Mexico. In addition, I have examined in the Field Museum, Chicago, a herbarium specimen of *A. uva-ursi* collected by E. A. Goldman in August of 1917 from the Arizona side.

ALLIUM GOODDINGII Ownbey. Up Indian Creek Canyon 3 km, and 20 km east of Mogollon on State Highway 78, Catron Co., New Mexico. *Hess 2181* (July 18, 1968). Locally common in damp and densely shaded floors of some of the north side canyons near their openings into the main canyon.

Previously, *Allium gooddingii* was known only from the White Mountains and Mogollon Rim in Arizona (Dr. Charles Mason, Jr., pers. comm.). Its occurrence in the Mogollon Mountains of New Mexico could be expected. In 1968 at the University of Arizona, I examined the herbarium specimens and labels, and more recently, Dr. Mason has forwarded all the label information on their plants identified as *A. gooddingii*. From the label information only three main localities in Arizona are indicated, and on one label, concern was expressed by the collector (*Phillips 3600*) that "road re-alignment may destroy this locality." When Ownbey (1947) described this plant, it was known only from the type locality. It now appears that *A. gooddingii* has a wider distribution with the likelihood of finding other sites and consequently a greater assurance that it will be preserved.

SISYRINCHIUM ELMERI Greene. Up Indian Creek Canyon 3 km, and 20 km east of Mogollon on State Highway 78, Catron Co., New Mexico. *Hess 2165* (July 18, 1968). Uncommon, along the creek margin with *Sisyrinchium demissum*, *Veronica americana*, *Ranunculus hydrocharoides*, *Deschampsia caespitosa*, and others.

In the *Arizona Flora* (Kearney & Peebles, 1960), this little plant is called *Sisyrinchium longipes*, and its distribution is recorded as ranging from the San Francisco and White Mountains south into northern Mexico. Bicknell (1900) monographed the yellow flowered *Sisyrinchium* (*Hydastylus*) and our plants correspond well to what is described as *H. elmeri*. The latter taxon was said to occur in the southern California mountains north in the Sierra Nevadas to northern California. Rickett (1970) states that *S. longipes* is equivalent to *S. elmeri*. The range for *S. elmeri* is extended from the mountains of California into Arizona and northern Mexico and now into the Mogollon Mountains of New Mexico.

PEDICULARIS ANGUSTIFOLIA Benth. Pl. Hartw. 22. 1839.

P. angustissima Greene. Leaflets. Bot. Obs. & Crit. 1:151. 1905.

I first collected *Pedicularis angustifolia* during August of 1966 in the Gila

Wilderness on a trail from Willow Creek to Whitewater Baldy and about 20 km east of Mogollon on State Highway 78, Catron Co., New Mexico. *Hess 930*. In the *Flora of New Mexico* (Wooten & Standley, 1915), the plants keyed out to *P. angustissima*. Upon checking the Bebb Herbarium specimens of *Pedicularis* at the University of Oklahoma, none called *P. angustissima* could be found. Further checking uncovered specimens identified as *P. angustifolia*, and it appeared that the plants from New Mexico were the same taxon. I have further checked plants labeled either *P. angustifolia* or *P. angustissima* in various herbaria (US, NY, ARIZ, MICH, F) with the same results, that is, all of the collections from Mexico are labeled *P. angustifolia* and the plants from New Mexico are called *P. angustissima*. Morphologically, the two taxa are indistinguishable and their variation completely overlaps. Green (1905) describes his specimens as "flowers crowded" and "leaves narrowly linear, 2 in. long, callous-crenulate" and Bentham (1839) writes "spicis densis paucifloris" and "foliis anguste linearibus integris margine minute cartilagineo-serrulatis." There seems to be little doubt that the two named taxa are the same, and that the plant collected and named by Greene (l. c.), *P. angustissima*, should be placed in synonymy under *P. angustifolia*.

Pedicularis angustifolia is widespread in the Mogollon Mountains and found mostly in association with *Picea engelmannii*. In these areas at an elevation of approximately 3200 meters, it makes up a dominant portion of the understory. In localities, such as Indian Creek, it is also found on the hill-sides in shaded regions of mixed coniferous woodland. This is another plant species that has the major part of its distribution in the mountains of northern Mexico just extending north into the Mogollon Mountains. As far as I know, *P. angustifolia* hasn't been found in Arizona and one would expect to find it in either the White or Chiricahua Mountains.

JUNIPERUS COMMUNIS L. var. DEPRESSA Pursh. On trail from Whitewater Baldy to Mogollon Baldy Mountain, approximately 19 km due east of Glenwood, Catron Co., New Mexico. *Hess 2268* (Aug. 22, 1968).

Although the range extension is not great (only 50 km southeast of the White Mountains of Arizona), Dr. Marion T. Hall (pers. comm.) did think it a significant factor to find it in the Mogollon Mountains. It occurs at an elevation of 3,225 meters under *Picea engelmannii*. This is still another example of the phytogeographic richness of the Mogollon Mountains with respect to the distributional overlap of northern Rocky Mountain plants and northern Sierra Occidental plants of Mexico.

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